Mosquito Control Annual Report 2002

Controlling Transmission of Mosquito-Borne Illness Through Reduction of the Mosquito Population

CLARK COUNTY

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AN OVERVIEW

Formation of the Mosquito Control District

Mosquito Control Districts are formed by the procedures outlined in Chapter 17.28 of the Revised Code of Washington State (RCW). The Clark County Mosquito District was formed in November 1982 by general election.

Oversight

The Board of Trustees has oversight responsibility for the Clark County Mosquito District. The Board is composed of one member appointed by each city in Clark County and three members appointed by the County Commissioners for the county at large.

The Board of Trustees establishes policy, prepares and establishes the annual budget, and approves expenditures for the Mosquito Control District. The Board contracts with Southwest Washington Health District for operation of the control activities. Environmental Health at the Clark County Health Department is located at:

1950 Fort Vancouver Way
Vancouver, WA 98663

Mailing Address:
Clark County Mosquito Control District
PO Box 9825
Vancouver, WA 98666-8825

Service Requests:
(360) 397-8430 (recording)

Telephone:
(360) 397-8057
Contact: Cheryl Staggs, Secretary to the Board

Objectives

The *Primary Objective* of mosquito control:
To provide a means of controlling mosquito-borne illness transmission through reduction of the Clark County mosquito population.

Our *Secondary Objectives* are:

- Freedom from mosquito annoyance in homes and workplaces.
- Increased efficiency of employees in outdoor occupations.
- Increased use and enjoyment of outdoor recreational activities.

Past Mosquito Control Treatment

Historically, toxic chemicals such as DDT were used to control mosquito populations throughout the United States. DDT was developed in 1873, but it wasn't until 1939 that the effectiveness of DDT as an insecticide was discovered. The use of DDT increased enormously on a worldwide basis after World War II, primarily because of its effectiveness against the mosquito that spreads malaria and lice that carry typhus. The World Health Organization estimates that during the period of its use, approximately 25 million lives were saved. DDT seemed to be the ideal insecticide as it was cheap and of relatively low toxicity to mammals. However, problems related to extensive use of DDT began to appear in the 1940's. Many species of insects developed resistance to DDT, and DDT was also discovered to have a high toxicity toward fish.

Current Mosquito Control Policy

The Board of Trustees has an adopted control policy to control the mosquito population and strives to use organic control methods, which have the least adverse effect on people, wildlife, and the environment. A great deal of progress has been made to use control agents specific to mosquitoes. A copy of the complete adopted policy is available upon request.

PERSONNEL

The Board of Trustees:

Name	Position
Woody Woodruff, President	City of Camas
Mark Rees, Vice President	District 3, Commissioner Pridemore
Dean Lindgren, Secretary-Treasurer	City of Washougal
Tim Ross, Trustee	City of Vancouver
Raul Moreno, Trustee	City of Ridgefield
Debra Smith, Trustee	Town of Yacolt
Randall King, Trustee	District 1, Commissioner Morris
Vacant	District 2, Commissioner Stanton
Vacant	City of LaCenter
Vacant	City of Battle Ground

The Staff:

Name	Position
Louis A. Dooley, RS, MPH	Staff Director
Christina Paggetti/Cheryl Staggs	Staff Assistant

The Crew:

Name	Position
Steve Kessler	Crew Supervisor
Sam Adams	Crew
Chris Lines	Crew
Jim Martin	Crew
Ken McMillan	Crew
Chuck Skov	Crew
Dale Smith	Crew
Warren Wyant	Crew

Summary

It was a very busy year for Clark County Mosquito Control District. We had a period of sustained high water during most of April, May and June, so we had to deal with the floodwater mosquito.

We had three aerial treatments: the first was on April 24 and 25, when we treated 273 acres with 2,080 lbs. of BTI; the second treatment occurred on June 4 and 5, when we treated 275 acres with 2, 160 lbs. of BTI; and the third treatment was made June 14, on 34 acres with 300 lbs. of BTI. Total aerial treatment utilized 4,540 lbs of BTI, covering 582 acres.

We no longer have a contract with Multnomah County, so we are now doing our own trapping and identification. The program is doing better than expected for the first year. We continue to add new retention ponds, and monitor and treat the ones we now have. WE also started collecting dead birds and sending them to be tested for West Nile Virus. The Ridgefield Wildlife Refuge is still denying CCMCD access to monitor and treat parts of the Refuge; hopefully we can work this out in the future.

2003 will be a busy year for us now that West Nile Virus has been found in Western Washington.

The Floodwater Mosquito

This is the most prevalent mosquito in Clark County. It is a very aggressive mosquito, with a long flight range.

The Columbia River dictates the high waters in our area, so when there is a heavy snowfall, the spring runoff is high. When the Columbia rises, it not only backs up into its mosquito habitat, but also backs up almost all streams, rivers, and lakes to their floodwater mosquito habitat. Therefore there is a direct link between the amount of snowfall and high water runoff in the Columbia River Basin, which includes British Columbia, Idaho, Montana, Oregon and Washington. Information provided by the National Weather Service and Bonneville Power Administration allows us to prepare for possible necessity to control the floodwater mosquito. Working with Multnomah and Columbia Counties in a joint aerial program has been a tremendous help in controlling the floodwater mosquito in our area.

Retention Ponds

The retention pond program began 2002 with a list of 145 ponds that required monitoring. During the course of the year six new ponds were found that brought our "active" list to 151. All of these ponds were checked during the season, and 18 of them required treatment. The relatively low numbers of ponds treated was due, mainly, to the dry summer that we experienced. A number of ponds that had been a problem in the past were found to be dry this year. The retention pond program will be ongoing and in a constant state of change as Clark County provides the Mosquito Control District with updated information on the construction of new ponds.

Included in the 2002 Surveillance Report is a list of the samples brought in from the retention ponds. One thing of importance that can be seen in this list is the *species*. The majority of mosquitoes identified were *Culex.* This mosquito is one of the major carriers of the West Nile Virus. This information will be a driving factor in the continuing focus on retention ponds.

Western Nile Encephalitis (WNE)

Western Nile Encephalitis (WNE) is a disease of birds, transmitted by mosquitoes. It is viral in nature causing an inflammation of the brain, and is usually found only in Africa, Eastern Europe, and West Asia.

WNE has become of interest in the United States due to an outbreak in 1999 in New York (62 cases of severe disease, 7 deaths) and its subsequent spread across the US. The incidence of disease spread in 2000, 2001 and continued to 2002. This mosquito-borne disease has spread rapidly from East to West covering the county in four years. The virus has now included cases in 40 of the 50 states, with Illinois, Indiana, Louisiana, Mississippi, Missouri, Nebraska, Ohio and Texas being particularly impacted. A total of 3,949 cases have been isolated with 254 deaths attributed to the disease.

Culex pipiens, the mosquito vector that transmits the disease, breeds in stagnant water held in open containers (cans, pots tires, etc.). This Culex species is commonly present in Clark County, raising concern for future treatment demands.

The chance of contracting the disease is very low. Even in an area where mosquitoes have been found to carry the virus, very few mosquitoes (far fewer than 1%) are infected. If the mosquito is infected, fewer than 1% of people who get bitten and become infected will get severely ill. The risk of becoming severely ill from any one-mosquito bite is extremely low. Mosquito control districts and local county governments are taking precautions that include active sampling (surveillance) of mosquito populations to enhance state and local government's early detection systems and to target application of specific adulticides and larvacides.

Prevention of West Nile Virus:

1. If you find a dead crow or jay, do not throw it away unless it is obvious that it flew into a window or an animal attacked it. Call the Clark County Mosquito Control District telephone reporting line at 397-8430 to report the sighting, and leave information about the kind of bird sighted, the condition of the carcass, location of the bird and your name, address and telephone number. If you handle the carcass, wear gloves or pick the bird up using a shovel. Place it in a plastic bag and either leave it for our staff to pick up, or if it is not in good enough condition to test, dispose of the carcass in the garbage. Retrieved birds will be sent to a laboratory to be tested for the virus.

2. Apply insect repellent sparingly to exposed skin. An effective repellent will contain 35% DEET (N < N-diethyl-meta-toluamide). DEET in high concentrations (greater than 35%) provides no additional protection. Spray clothing with repellents since mosquitoes may bite through clothing. Follow manufacturer's directions.

3. If you are experiencing a high number of mosquitoes, contact Clark County Mosquito Control District and leave a message on our service request line at 397-8430. An informational letter will be sent to you and if needed, a staff member will contact you to request additional information about the problem. Our mosquito District Crew will follow up, usually within 48 hours.

THE SERVICE REQUESTS

The 2002 profile of service request calls was very different than that of 2001. The total number of calls during the past year nearly tripled the requests received in 2001; the crew received 155 service requests during 2002, as compared to 55 in 2001. An email address (mosquito@swwhd.wa.gov) is available to allow the public increased access to information and service requests.

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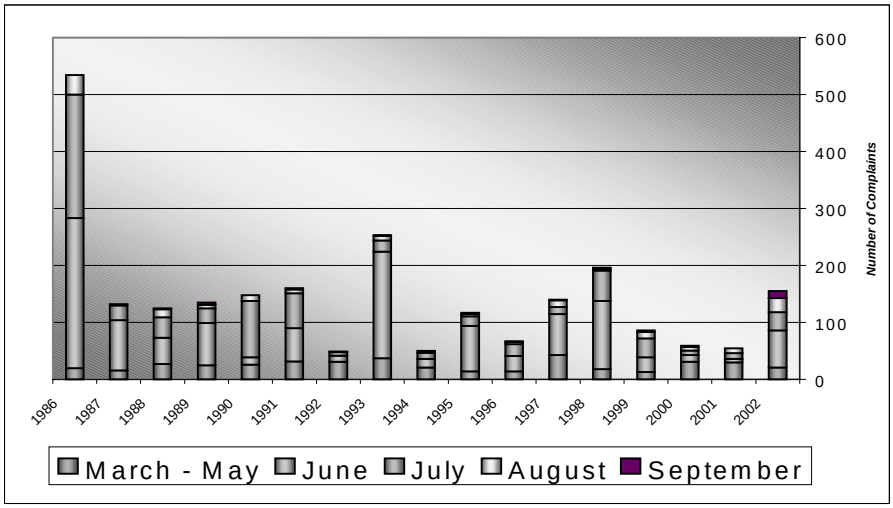
	March - May	June	July	August	September	Annual Totals
1986	20	263	217	34	0	534
1987	16	88	26	2	0	132
1988	27	46	36	14	2	125
1989	25	74	26	6	4	135
1990	26	13	99	10	0	148
1991	32	58	61	7	2	160
1992	31	11	6	1	0	49
1993	37	187	20	8	1	253
1994	21	15	11	3	0	50
1995	14	80	17	4	2	117
1996	14	27	21	4	1	67
1997	43	72	12	12	1	140
1998	18	120	53	3	2	196
1999	13	26	33	11	3	86
2000	31	12	8	6	2	59
2001	30	6	10	9	0	55
2002	21	65	32	25	12	155
Monthly Totals	419	1163	688	159	32	**2461**
Monthly Average	*25*	*69*	*41*	*8*	*1*	*144*



STATISTICS BY LOCATION

City	No. of Service Requests	Percent
Battle Ground	4	3%
Brush Prairie	4	3%
Camas	7	4%
La Center	3	2%
Ridgefield	53	34%
Vancouver	76	49%
Washougal	2	1%
Yacolt	1	1%
Unknown	5	3%
Total	**155**	**100%**

Zip Code	No. of Service Requests	Percent
98604	4	3%
98606	4	3%
98607	8	6%
98629	3	2%
98642	54	34%
98661	8	5%
98662	4	3%
98663	4	3%
98664	4	3%
98665	6	4%
98671	2	1%
98682	2	1%
98683	2	1%
98684	1	1%
98685	34	22%
98686	4	3%
Unknown	8	5%
Totals	**155**	**100%**

Control Agents

Altosid *(Methaprine)*
Altosid is a long-term, cost-effective, and environmentally responsible larvacide that prevents mosquito larvae from becoming breeding, biting adults. *Altosid* contains an insect growth regulator that interferes with normal mosquito development. It will not upset the food chain or impact fish and other non-target species. [1]

Bti *(Bacillus thuringiensis var. Israelensis)*

The Mosquito District is now using *Bti***,** an approved strain of bacteria affecting only mosquito and black fly larvae thus sparing other insects. It is a biological control method and only effective in the early stages of mosquito larvae development, so timing is critical. *Bti* is considered harmless to non-target fauna, humans, and the environment. It is the only control agent used on wildlife reservations.

Goldenbear Oil *(GBO) (GB-1111)*
Goldenbear Oil is a special thin oil used to control mosquito larvae. It is sprayed onto the water surface when mosquito larvae are found. The oil spreads rapidly over the water surface, forming a thin monomolecular surface film. The larvae are then unable to break the water surface with their breathing tube, thus suffocating the larvae. *Goldenbear Oil* is effective for all stages of mosquito larvae. A few days after *Goldenbear Oil* is applied, the film will have dissipated from the water by evaporation. *Goldenbear Oil* does not have a long-lasting control period and must be reapplied as needed. It is not used in water containing fish.

Scourge (Resmethrin)

Scourge is used to control the adult mosquito population. It is sprayed early in the morning when the mosquito is actively seeking a blood meal. The active ingredient in *Scourge* breaks down in less than four hours in sunlight. [2]

Vectolex (Bacillus sphaericus)
Vectolex is a larvacide that prevents maturation of larva to adult mosquitoes. The active ingredient is a common bacterium, *bacillus sphaericus*. Like *Bti*, this product is harmless to non-specific flora, fauna, humans and the environment.

[1] www.altosid.com
[2] www.ultranet.com/~ncmcp/scourge.htm

Aerial Application

Aerial application is a very efficient and affordable way to control mosquito populations in areas inaccessible by land or water, using a fraction of the manpower needs. This chart shows the areas treated by this method in 2002:

Dipsites	Date	Acres	Lbs. BTI	Area
10006				
	4/24/02	60	480	
	6/04/02	30	240	Vancouver Lake (Alcoa Trail)
10010				
	6/04/02	50	400	
	4/24/02	60	480	
	6/04/02	50	400	Felida
10024				
	4/24/02	60	440	Vancouver Lake
	6/04/02	65	480	(North of Geen Gate)
10025				
	4/24/02	40	280	Vancouver Lake
	6/04/02	40	320	(South of Geen Gate)
11001				
	4/25/02	9	70	
	6/05/02	10	80	Third Street Loop (Camas)
15001				
	6/05/02	5	40	Race Track
	4/25/02	14	130	(Cottonwood Beach)
15003				
	6/14/02	34	300	
	6/4/02	25	200	
	4/25/02	30	200	Reed Island
Totals		**582**	**4540**	

Summary of Products Used:

Product	Gallons	Lbs	Oz
Biomist			1932
Bti Granular		5412	
Goldenbear Oil			338
Goldenbear Oil	13		
Permethrin			504
Vectolex			10
Vectolex		89	

The Ten Most Frequently Asked Questions About Mosquitoes [3] [4]

1. **How many species of mosquitoes are in the world?**
   About 2,700

2. **How much blood does a female mosquito drink per serving?**
   About 5-millionths of a quart (for an Aedes aegypti)

3. **What is the average number of mosquito bites a person receives before taking action (going indoors or putting on a personal repellant)?**
   Three.

4. **How do mosquitoes find new hosts?**
   By sight (they observe movement); by detecting infrared radiation emitted by warm bodies; and by chemical signals (mosquitoes are attracted to carbon dioxide and lactic acid, among other chemicals).

5. **How fast can a mosquito fly?**
   An estimated 1 to 1.5 miles per hour.

6. **How do mosquitoes spread disease?**
   A female mosquito passes contractible diseases, such as malaria, yellow fever, dengue fever, and encephalitis to her eggs. Once a mosquito ingests infected blood, she will contract the disease within 10 days.

7. **How far away can a mosquito smell you, or a cow, or another host?**
   20-35 yards

8. **What color clothing should be worn in mosquito-infested areas?**
   Light colors should be worn because mosquitoes are attracted to dark colors.

9. **What is the most effective protection against biting insects?**
   The most effective treatment is a repellent containing DEET.

10. **How well do bug zappers work?**
    Forget about bug zappers! Scientific studies show that bug zappers actually attract more mosquitoes into your backyard. In fact, many beneficial insects are killed. Bug zappers may provide some psychological relief and gratification, but they'll also run up your electric bill without controlling your mosquito problem.

[3] whyfiles.news.wisc.edu/016skeeter/skeeter_facts.html
[4] www.mosquitoes.com

REPORTING MOSQUITO NUISANCES

How To Contact Us

1. **Mosquito Control Support Hot-Line** - (March 1- October 1)
   (360) 397-8430

2. **Clark County Health Department - Environmental Health**
   (360) 397-8057

3. **Fax (Attn: Mosquito Control)**
   (360) 397-8430

4. **Email:** mosquito@swwhd.wa.gov

How to Call in a service request

When reporting a mosquito naissance it is very important to give complete information. This allows for timely response by the Clark County Mosquito Control crew. Please have the following information when reporting a request for service:

1. Your name
2. Your mailing address
3. Contact telephone with best times to call
4. Fax number, if available
5. Email address, if available
6. Location of the problem
7. Description of the problem

Once our office has received your service request, material will be sent to your home for your review. You will also be asked to draw a map locating the problem site and return it to our office.

ADDITIONAL RESOURCES

If you would like to find out more about mosquitoes check out the following Web sites:

www.nwmvca.org	Northwest Mosquito & Vector Control Association
www.mosquitoes.com	SC Johnson, the maker of *"OFF"* mosquito repellant
www.mosquito.org	American Mosquito Control Association (AMCA)
www.cdc.gov/ncidod/dvbid/westnile/index.htm	Centers for Disease Control & Prevention West Nile Virus Website
www.doh.wa.gov/ehp/ts/Zoo/WNV/WNV.html	State of Washington Department of Health West Nile Virus Information
www.pested.psu.edu	Penn State College of Agricultural Services
www.medscape.com	Medscape Health for Consumers